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$$= \log c t + t n \left( -\frac{q}{a} - \frac{q^2}{2 a^2} - \frac{q^3}{3 a^3} - \&c. \right).$$

Neglecting powers of infinitesimals, we have

$$\log \left( \frac{c t}{Q} \right) = \frac{t n q}{a} = \frac{c t}{a}.$$

$$\therefore e^{\frac{c t}{a}} = \frac{c t}{Q}. \quad \therefore Q = c t e^{-\frac{c t}{a}};$$

where  $e$  denotes the base of the Napierian system of logarithms.

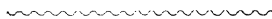
[This question was solved by Prof. Evans in an elegant manner by the method of finite differences, and in nearly the same manner as the above by Prof. Sensenig. All the other solutions were by application of the differential and integral calculus.]



**QURRY**—Can a demonstration be given of the following formula for primes?

$$N = \frac{x}{A \log x - B};$$

in which  $N$  denotes the number of prime numbers contained in any number  $x$ , and  $A$  and  $B$  are constants.—Communicated by **PROF. EDWARD BROOKS**.



**NOTE ON SUN SPOTS.**—One might easily gather from reading astronomical works, that solar spots are rarely visible to the naked eye; that is, without the use of a telescope; but such is not the case. Let any one who feels an interest in the subject, prepare a suitable smoked glass, and examine the sun's disk daily, or as often as the clouds will permit, and he will find that solar spots can frequently be seen without a telescope. If it were worth the space to record the observations, I could give numerous instances when I saw spots without a telescope, and I have occasionally seen two at a time.

Since the sun's spots return periodically once in about eleven years; that is, from the minimum average number they gradually increase in number and area till the maximum is reached in about five and a half years, when the number gradually decreases; large spots are more likely to be seen about the time of the maximum number.

To discover a solar spot without a telescope, keep the eye directed atten-